



Introduction

This Covered Species Technical Paper (Species Paper) is one of several documents developed to assist the Washington State Department of Natural Resources (Washington DNR) Aquatic Resources Program with its Endangered Species Act (ESA) compliance efforts. The purpose of this document is to organize information concerning species considered Endangered, Threatened, of Concern or rare, their associated habitat, and the interaction with Washington DNR authorized activities on state-owned aquatic lands. This information is for use within the framework of an ESA compliance process. Utilizing the more formal language of Section 10, Washington DNR's goal for ESA compliance is to:

Reduce Endangered Species Act liability associated with authorizing the use of state-owned aquatic lands while enhancing efforts to conserve and recover Endangered, Threatened, and imperiled species.

Generally, the United State Fish and Wildlife Service (US Fish and Wildlife) and the National Oceanographic and Atmospheric Administration, National Marine Fisheries Service (NOAA Fisheries) (collectively, the Services) require a standard information base for determining compliance with the ESA. Washington DNR has developed and initiated a process that accumulates, synthesizes, and presents this information in an efficient and compartmentalized manner for use in a final ESA compliance document. The basic information for direct application as components of an ESA compliance document, are provided in separate documents (technical papers) and include the following:

- Covered Species (what species would be affected and what is their status),
- Covered Activities (what actions might potentially cause take),
- Covered Area/Habitat (what is the location and description of baseline conditions),
- Potential Effects (what are the direct and indirect impacts of the covered activities),
- Conservation Measures (what actions will be taken to avoid, minimize, and mitigate), and Expected Outcome (what is the expected outcome of implementing covered activities with conservation measures).

The first phase of this process was to develop a science-based understanding of the relationship between species, habitats and the interaction with Washington DNR managed lands, including steps to conserve and recover species. Washington DNR used an ecosystem-based approach to organize this information, which is a method compatible with both the agency's proprietary authorities and habitat-based management. The organization of information by ecosystem provided a habitat-based perspective for

addressing the conservation needs of species and greatly assisted in the analysis of take. By grouping species by habitat-type, existing spatial and temporal aspects of habitat use more directly related to activities authorized by Washington DNR.

The Washington DNR ESA Compliance Habitat Paper (Habitat Paper) is a companion document to the Species Paper and provides detailed descriptions of the six of ecosystems and associated habitats used in the Washington DNR ESA compliance process (Washington DNR 2005). The ecosystem and habitat classifications provided in the Habitat Paper are founded on scientifically-based and commonly-used classification systems, but have been simplified to some degree for this process. The main purpose of the classification systems used in this process was to help organize data and determine where species, habitats, and activities were spatially and temporally coincident. The ecosystem and habitat classifications were not used to explore detailed ecological or systematic questions. It was necessary to use a simplified classification system because of the inherent complexities associated with addressing a broad geographic area, the number of potentially affected species and their widely varied life histories, the broad array of authorized activities, and the inconsistent resolution of available data. Throughout the Species Paper, the habitat requirements of individual species are discussed in the context of the classification system presented in the Habitat Paper.

1-2 Overview of Species Considered and Species Categories

1-2.1 Description of Covered, Evaluation, and Watch List Categories

When considering species to include in the ESA compliance process, Washington DNR followed guidance provided by the ESA and the Services (US Fish and Wildlife Service and NOAA Fisheries 1996). The primary species that “trigger” the need for an incidental take permit (Section 10(a) of ESA) are federally Threatened or Endangered species. When developing an ESA compliance document to obtain take authorization, such as a Habitat Conservation Plan (HCP), the Services also encourage the inclusion of unlisted species (proposed and candidate species as a minimum). The Services are particularly interested in those species that are likely to be listed within the foreseeable future or within the life of the permit. The primary reasons for addressing unlisted species are to: 1) provide more planning certainty to the permittee in the face of future species listings, and 2) increase the biological value of the plan through comprehensive multi-species or ecosystem planning that provides early and proactive consideration of the needs of unlisted species.

To determine which species would benefit from multi-species planning and inclusion for coverage under the Washington DNR ESA compliance process, species were assigned to three categories as described by the following criteria:

Covered Species

- Species with 1) sufficient biological information (enough habitat, distribution, status or conservation potential to provide adequate conservation planning) and 2) where conservation measures exist (practical and effective measures that have demonstrated effectiveness to sustain or recover a population) or 3) species for which conservation measures can be easily defined and implemented to support an application for Section 10(a) Incidental Take Permits.
- Species that may not have a great deal of information available for conservation planning (e.g. habitat, distribution, status or conservation potential), but have a close habitat association to other Covered Species and would therefore, benefit sufficiently to support application for a Section 10(a) Permit.
- Species whose listing appears imminent unless conservation measures are instituted that would likely assure their survival and recovery.

Evaluation Species

- Species that require additional information to provide adequate conservation planning or whose conservation measures are not easily defined to support application for a Section 10(a) Permit. As adequate information and corresponding conservation measures are developed related to an Evaluation Species, amendments to the ESA document can be submitted for inclusion into the list of Covered Species.

Watch List Species

- Species that are not considered to be at risk during the ESA planning horizon or do not have adequate information regarding habitat, distribution, status or conservation potential.

Only Covered Species received recommendations, by the applicant, for ESA coverage. Evaluation and Watch List Species did not receive recommendations for coverage under ESA for one or more of the following reasons 1) it is unlikely that the species will be listed in the foreseeable future, 2) it is unlikely that Washington DNR authorized activities have the potential to affect the species, or 3) insufficient information exists to assess potential effects and develop conservation measures.

1-2.2 Selecting Covered Species

The overall strategy for placing species into categories was to be all-inclusive of species that could potentially benefit from conservation planning by Washington DNR on state-owned aquatic lands. Categorization can then be adjusted as information is further developed on the species, its use of habitat by life-stage and the potential for interaction with Washington DNR activities. In the ESA Compliance process, Covered Species were examined in detail including development of detailed life-history and habitat use, screening of potential effects, an effects (take) analysis, and development of

corresponding conservation measures. Evaluation Species were examined through the screening of potential effects. Watch List Species were those species determined not at risk or for which there is not enough information to perform potential effects screening.

Conservative assumptions that were inclusive with respect to species habitat use and potential for activity interactions were used both in selecting species to be considered and in the assignment to initial categories. If existing information about habitat use for a particular life-stage of a species was inconclusive and there was a remote chance that they could have an interaction with activities authorized by Washington DNR, they were put in a category that allowed for additional investigation (Covered Species or Evaluation Species). The species were then moved to the appropriate category if more in-depth information indicated the species did not meet the initial categorization criteria.

What follows is a more detailed description of the steps and tasks in this iterative process.

Step 1: Preliminary Species List, Categorization and Screening

Task 1

The first step in developing the preliminary species list was to develop a comprehensive list of potential species (Endangered, Threatened, of Concern, or rare) for inclusion in the species categorization process. This list was initially developed by Washington DNR and resulted in a preliminary list of approximately 86 “target” species (considered as Endangered, Threatened, of Concern or rare) for further investigation. The following bulleted list provides a summary of key elements used by Washington DNR in defining the preliminary species list. Details of the species selection chronology is provided in Appendix A, with Washington DNR’s species selection matrix provided in Appendix B.

- Development of a master species list,
- Identification of federal and state species designations,
- Elimination of terrestrial species,
- Elimination of species that do not occur in the state of Washington,
- Assessment of the degree to which individual species are dependent on submerged lands for habitat (assigned numeric value),
- Assessment of the level of vulnerability of individual species to Washington DNR authorized activities (assigned numeric value),
- Assessment of species covered by existing HCPs in the state of Washington, and
- Informal review and discussion with NOAA Fisheries and US Fish and Wildlife.

Task 2

A consultant team was brought into the project to do an independent review of the preliminary Washington DNR list and provide assistance in developing a method for gathering additional information and categorizing the species. The consultant team developed more detailed information to compare the Washington DNR scores for

potential for species interaction (vulnerability) with Washington DNR activities. Where appropriate, each of the 86 species were divided into life stage categories and examined across each of the six ecosystems and 17 general categories of Washington DNR authorized activities (Appendix C). The consultants examined each potential category and indicated the potential for interaction (yes/no), as well as a level of confidence for the potential interaction (low/medium/high). The matrix and information regarding potential for interaction is provided in Appendix D.

Task 3

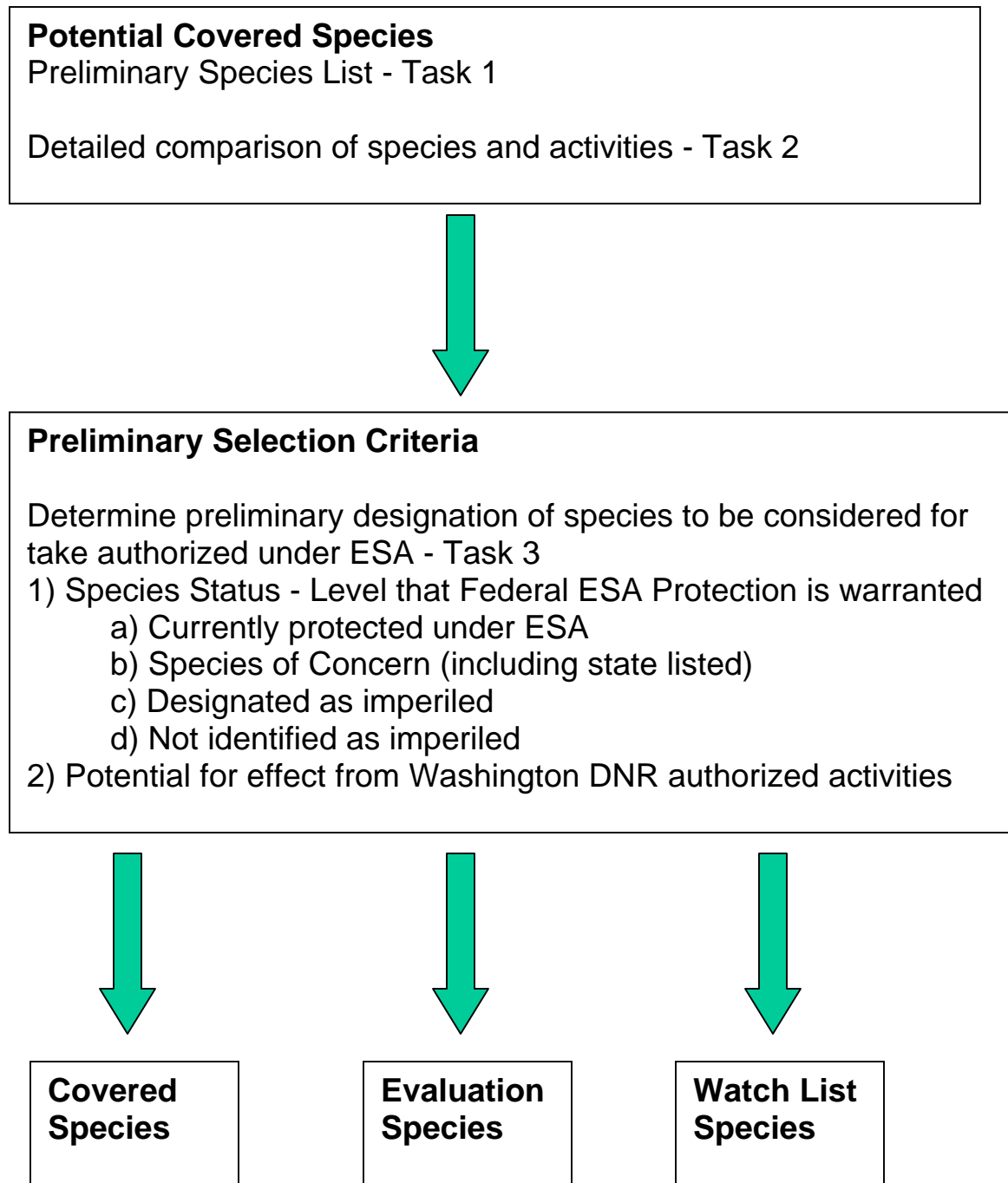
The consultant team then employed a decision matrix for determining preliminary designation of species to be considered for take authorization under ESA and associated with Washington DNR aquatic activities. Table 1 is a summary of the preliminary selection criteria used in the matrix and shows that there are two general areas of criteria. The first criteria area is the level that species protection is warranted under ESA, with the second area the potential for Washington DNR authorized activities to affect the species. Much of the information developed in Tasks 1 and 2 were applied in the independent preliminary selection criteria (Figure 1). The results of this analysis are presented in Appendix E. Preliminary selection criteria included:

- Species status - current protection status under ESA,
- Species of Concern status (including state-listed),
- Designation as imperiled (state or global),
- Potential interaction with Washington DNR authorized activities, and
- Potential effect of Washington DNR authorized activities.

Table 1. Decision matrix for determining preliminary designation of species to be considered for take authorization (under ESA) associated with Washington DNR aquatic activities.

Preliminary Selection Criteria	Species Status – Level that Federal ESA Protection is Warranted			
	Currently Listed	Species of Concern	Designated Imperiled	Not Designated
Potential affect				
High	Covered Species	Covered Species	Evaluation Species	Evaluation Species
Medium	Evaluation Species	Evaluation Species	Evaluation Species	Watch List Species
Low	Evaluation Species	Evaluation Species	Watch List Species	Watch List Species

Figure 1. Decision process for conducting a preliminary designation of species to be considered for take authorization (under ESA) associated with Washington DNR authorized aquatic activities.



Step 2: Species Evaluation/Designation/Justification

Task 1

The consultant team gathered information for those factors influencing the continued existence of each species designated as Covered Species or Evaluation Species in the initial categorization. This assessment was presented by general taxonomic affiliations, with species grouped in the following sections: Section 2.0, Amphibians and Reptiles; Section 3.0, Anadromous, Freshwater and Marine Fish, 4.0 Birds, 5.0 Invertebrates, 6.0 Marine Fish, 7.0 Marine Mammals, with 8.0 Plants. Within each of the sections species were grouped alphabetically by Coverage Category (i.e., Covered, Evaluation, or Watch-list). (Appendix E). The focus of information for each species is summarized below:

- Species status,
- Species range,
- Habitat use,
- Population trends,
- Threats warranting ESA listing,
- Potential effect from Washington DNR authorized activities, and
- Justification and recommendation for species designation.

Each species assessment includes a figure depicting its distribution within the state of Washington (Appendix F). For this purpose, particular species distributions were determined and represented by a variety of methods. Species distribution was determined by one or more of the following methods: observational data, survey data, expert opinion and predicted habitat use. Much of the observational and survey data was provided by a database maintained by the Washington Natural Heritage Program, a department of Washington DNR. Species distribution was reviewed by independent experts and adjusted if necessary. For those species for which observational data was missing or incomplete, predicted distribution was determined by using habitat type as a surrogate for distribution throughout a species known range. This method provided a conservative estimate of species distribution. In all cases, the best available science was used in determining species distribution.

Task 2

Washington DNR and the consultant team reviewed initial species designations, assessments and recommendations and made the justified species categorization changes. The results of this analysis are presented in Table 2.

Step 3: Final Designation/Justification

The final recommendation will be based on adequate description of covered activities and a final assessment of the effects of those activities on the species. A screening of habitat use by species and lifestage and Washington DNR activities will be accomplished using data and information developed in both the Activities and Habitat Papers, with the evaluation done for all Covered and Evaluation Species. As stated earlier, this is an

iterative process and some species may change categories, as information on potential interactions becomes more precise.

Table 2. List of Species Identified as Covered Species, Evaluation Species, and Watch List Species (C = Covered Species, E = Evaluation Species and W = Watch List Species).

Association	Common Name	Scientific Name	Initial Category	Final Category
Amphibians	Cascades frog	<i>Rana cascadae</i>	E	W
Amphibians	Coastal tailed frog	<i>Ascaphus truei</i>	E	E
Amphibians	Columbia spotted frog	<i>Rana pretiosa (spp. B)</i>	C	C
Amphibians	Northern leopard frog	<i>Rana pipiens</i>	C	C
Amphibians	Northern red-legged frog	<i>Rana aurora aurora</i>	C	W
Amphibians	Oregon spotted frog	<i>Rana pretiosa (spp. A)</i>	E	E
Amphibians	Red-legged frog	<i>Rana aurora</i>	C	Removed
Amphibians	Rocky Mountain tailed-frog	<i>Ascaphus montanus</i>	E	W
Amphibians	Western toad	<i>Bufo boreas (spp. A)</i>	E	E
Birds	American white pelican	<i>Pelecanus erythrorhynchos</i>	C	E
Birds	Bald eagle	<i>Haliaeetus leucocephalus</i>	C	C
Birds	Black Tern	<i>Chlidonias niger</i>	C	C
Birds	Brandt's cormorant	<i>Phalacrocorax penicillatus</i>	E	W
Birds	Brown pelican	<i>Pelecanus occidentalis</i>	E	E
Birds	Cassin's auklet	<i>Ptychoramphus aleuticus</i>	E	E
Birds	Clark's grebe	<i>Aechmophorus clarkii</i>	E	W
Birds	Common loons	<i>Gavia immer</i>	C	C
Birds	Common murre	<i>Uria aalge</i>	C	C
Birds	Eared grebe	<i>Podiceps nigricollis</i>	C	E
Birds	Harlequin duck	<i>Histrionicus histrionicus</i>	E	C
Birds	Marbled murrelet	<i>Brachyramphus marmoratus</i>	C	C
Birds	Peregrine falcon	<i>Falco peregrinus</i>	C	W
Birds	Purple martin	<i>Progne subis</i>	C	W
Birds	Tufted puffin	<i>Fratercula cirrhata</i>	E	C
Birds	Western snowy plover	<i>Charadrius alexandrinus nivosus</i>	E	C
Fish - Anadromous	Bull trout/Dolly Varden	<i>Salvelinus confluentus</i>	C	C
Fish - Anadromous	Chinook salmon	<i>Oncorhynchus tshawytscha</i>	C	C
Fish - Anadromous	Chum salmon	<i>Oncorhynchus keta</i>	C	C
Fish - Anadromous	Coastal cutthroat	<i>Oncorhynchus clarki clarki</i>	E	C
Fish - Anadromous	Coho salmon	<i>Oncorhynchus kisutch</i>	C	C
Fish - Anadromous	Eulachon	<i>Thaleichthys pacificus</i>	C	E
Fish - Anadromous	Green sturgeon	<i>Acipenser medirostris</i>	W	E
Fish - Anadromous	Pacific lamprey	<i>Lampetra tridentata</i>	C	E
Fish - Anadromous	Pink salmon	<i>Oncorhynchus gorbuscha</i>	E	E
Fish - Anadromous	River lamprey	<i>Lampetra ayresi</i>	C	E
Fish - Anadromous	Sockeye salmon	<i>Oncorhynchus nerka</i>	C	C

Association	Common Name	Scientific Name	Initial Category	Final Category
Fish - Anadromous	Steelhead	<i>Oncorhynchus mykiss</i>	C	C
Fish - Anadromous	White sturgeon	<i>Acipenser transmontanus</i>	C	E
Fish - Freshwater	Leopard dace	<i>Rhinichthys falcatus</i>	C	E
Fish - Freshwater	Margined sculpin	<i>Cottus marginatus</i>	C	E
Fish - Freshwater	Olympic mudminnow	<i>Novumbru hubbsi</i>	E	E
Fish - Freshwater	Pygmy whitefish	<i>Prosopium coulteri</i>	C	E
Fish - Freshwater	Umatilla dace	<i>Rhinichthys umatilla</i>	C	E
Fish - Freshwater	Westslope cutthroat	<i>Oncorhynchus clarki lewisi</i>	C	W
Fish - Marine	Black rockfish	<i>Sebastes melanops</i>	E	E
Fish - Marine	Bocaccio rockfish	<i>Sebastes paucispinis</i>	E	E
Fish - Marine	Brown rockfish	<i>Sebastes auriculatus</i>	E	E
Fish - Marine	Canary rockfish	<i>Sebastes pinniger</i>	E	E
Fish - Marine	China Rockfish	<i>Sebastes nebulosus</i>	E	E
Fish - Marine	Copper rockfish	<i>Sebastes caurinus</i>	E	E
Fish - Marine	Greenstriped rockfish	<i>Sebastes elongatus</i>	E	E
Fish - Marine	Pacific cod	<i>Gadus macrocephalus</i>	C	E
Fish - Marine	Pacific hake	<i>Merluccius productus</i>	C	E
Fish - Marine	Pacific herring (Cherry Point, Discovery Bay)	<i>Clupea pallasii</i>	C	E
Fish - Marine	Quillback rockfish	<i>Sebastes maliger</i>	E	E
Fish - Marine	Redstripe rockfish	<i>Sebastes proriger</i>	E	E
Fish - Marine	Tiger rockfish	<i>Sebastes nigrocinctus</i>	E	E
Fish - Marine	Walleye pollock	<i>Theragra chalcogramma</i>	C	E
Fish - Marine	Widow rockfish	<i>Sebastes entomelas</i>	E	E
Fish - Marine	Yelloweye rockfish	<i>Sebastes ruberrimus</i>	E	E
Fish - Marine	Yellowtail rockfish	<i>Sebastes flavidus</i>	E	E
Insects	Columbia River tiger beetle	<i>Cicindela columbica</i>	E	Removed
Insects	Fender's soliperlan stonefly	<i>Soliperla fenderi</i>	C	Removed
Insects	Lynn's clubtail	<i>Gomphus lynnae</i>	E	E
Marine Mammals	Black right whale	<i>Balaena glacialis</i>	E	Removed
Marine Mammals	Blue whale	<i>Balaenoptera musculus</i>	E	W
Marine Mammals	Bowhead whale	<i>Balaena mysticetus</i>	E	W
Marine Mammals	Gray whale	<i>Eschrichtius robustus</i>	E	W
Marine Mammals	Humpback Whale	<i>Megaptera novaeangliae</i>	E	E
Marine Mammals	Killer whale - Offshore	<i>Orcinus orca</i>	E	W
Marine Mammals	Killer whale - Southern Resident	<i>Orcinus orca</i>	E	C
Marine Mammals	Killer whale - Transient	<i>Orcinus orca</i>	E	E
Marine Mammals	Northern sea otter	<i>Enhydra lutris kenyonii</i>	E	E
Marine Mammals	Right whale	<i>Eubalaena japonica</i>	E	W
Marine Mammals	Steller sea-lion	<i>Eumetopias jubatus</i>	E	E
Mollusks	Ashy snail	<i>Fluminicola fuscus</i>	C	E
Mollusks	California floater	<i>Anodonta californiensis</i>	E	E
Mollusks	Columbia pebblesnail	<i>Fluminicola =Lithoglyphus columbianus</i>	C	Removed
Mollusks	Idaho Springsnail	<i>Pyrgulopsis idahoensis</i>	C	W
Mollusks	Masked duskysnail	<i>Lyogyrus sp. 2</i>	E	E
Mollusks	Nerite rams-horn	<i>Vorticiflex neritoides</i>	E	E
Mollusks	Newcomb's littorine snail	<i>Algamorda subrotundata</i>	E	E
Mollusks	Olympia oyster	<i>Ostrea lurida</i>	C	E
Mollusks	Olympia pebblesnail	<i>Fluminicola virens</i>	E	E
Mollusks	Pinto (Northern) abalone	<i>Haliotis kamtschatkana</i>	C	C
Mollusks	Rams-Horn Valvata	<i>Valvata mergella</i>	E	Removed

Association	Common Name	Scientific Name	Initial Category	Final Category
Mollusks	Shortfaced Lanx	<i>Fisherola nuttalli</i>	C	E
Mollusks	Washington duskysnail	<i>Amnicola sp. 2</i>	E	E
Mollusks	Western ridgemussel	<i>Gonidea angulata</i>	E	E
Plants	Columbia yellow-cress	<i>Rorippa columbiae</i>	E	Removed
Plants	Kalm's lobelia	<i>Lobelia kalmii</i>	E	W
Plans	Persistentsepal yellowcress	<i>Rorippa calycina</i>	C	E
Plants	Pygmy water-lily	<i>Nymphaea tetragona</i>	C	W
Plants	Water howellia	<i>Howellia aquatilis</i>	C	C
Plants	Water lobelia	<i>Lobelia dortmanna</i>	C	E
Reptiles	Western pond turtle	<i>Clemmys marmorata</i>	C	C

1-3 References

US Fish and Wildlife Service and NOAA Fisheries. 1996. Habitat Conservation Planning and Incidental Take Permit Processing Handbook.

Washington State Department of Natural Resources. 2005. Endangered Species Act Compliance Project, Covered Habitat Paper. Olympia, WA.